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PULL-TYPE DEVICE FOR LOWERING SUPPORT SECTIONS WHEN  
REINFORCING MINE SHAFTS AND HOLES(U) FOREIGN TECHNOLOGY  
DIV WRIGHT-PATTERSON AFB OH V V MAKSIMENKO 06 MAR 84  
FTD-ID(RS)T-1828-83

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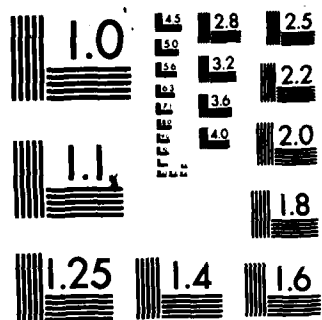
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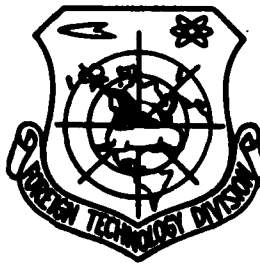
# FOREIGN TECHNOLOGY DIVISION



PULL-TYPE DEVICE FOR LOWERING SUPPORT SECTIONS  
WHEN REINFORCING MINE SHAFTS AND HOLES

by

V. V. Maksimenko



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## EDITED TRANSLATION

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PULL-TYPE DEVICE FOR LOWERING SUPPORT SECTIONS WHEN  
REINFORCING MINE SHAFTS AND HOLES

By: V. V. Maksimenko

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PREPARED BY:

TRANSLATION DIVISION  
FOREIGN TECHNOLOGY DIVISION  
WP-AFB, OHIO.

# U. S. BOARD ON GEOGRAPHIC NAMES transliteration SYSTEM

Block	Italic	Transliteration	Block	Italic	Transliteration
А а	<i>А а</i>	A, a	Р р	<i>Р р</i>	R, r
Б б	<i>Б б</i>	B, b	С с	<i>С с</i>	S, s
В в	<i>В в</i>	V, v	Т т	<i>Т т</i>	T, t
Г г	<i>Г г</i>	G, g	У у	<i>У у</i>	U, u
Д д	<i>Д д</i>	D, d	Ф ф	<i>Ф ф</i>	F, f
Е е	<i>Е е</i>	Ye, ye; E, e*	Х х	<i>Х х</i>	Kh, kh
Ж ж	<i>Ж ж</i>	Zh, zh	Ц ц	<i>Ц ц</i>	Ts, ts
З з	<i>З з</i>	Z, z	Ч ч	<i>Ч ч</i>	Ch, ch
И и	<i>И и</i>	I, i	Ш ш	<i>Ш ш</i>	Sh, sh
Й й	<i>Й й</i>	Y, y	Щ щ	<i>Щ щ</i>	Shch, shch
К к	<i>К к</i>	K, k	Ъ ъ	<i>Ъ ъ</i>	"
Л л	<i>Л л</i>	L, l	Ы ы	<i>Ы ы</i>	Y, y
М м	<i>М м</i>	M, m	Ь ь	<i>Ь ь</i>	'
Н н	<i>Н н</i>	N, n	Э э	<i>Э э</i>	E, e
О о	<i>О о</i>	O, o	Ю ю	<i>Ю ю</i>	Yu, yu
П п	<i>П п</i>	P, p	Я я	<i>Я я</i>	Ya, ya

\*ye initially, after vowels, and after ъ, ы; e elsewhere.  
When written as ё in Russian, transliterate as yě or ě.

## RUSSIAN AND ENGLISH TRIGONOMETRIC FUNCTIONS

Russian	English	Russian	English	Russian	English
sin	sin	sh	sinh	arc sh	sinh <sup>-1</sup>
cos	cos	ch	cosh	arc ch	cosh <sup>-1</sup>
tg	tan	th	tanh	arc th	tanh <sup>-1</sup>
ctg	cot	cth	coth	arc cth	coth <sup>-1</sup>
sec	sec	sch	sech	arc sch	sech <sup>-1</sup>
cosec	csc	csch	csch	arc csch	csch <sup>-1</sup>

Russian English

rot curl  
lg log

## GRAPHICS DISCLAIMER

All figures, graphics, tables, equations, etc. merged into this translation were extracted from the best quality copy available.

## **PULL-TYPE DEVICE FOR LOWERING SUPPORT SECTIONS WHEN REINFORCING MINE SHAFTS AND HOLES**

**V. V. Maksimenko**

**Pervomaysk Shaft-Sinking Administration for Drilling Shafts and Holes**

This invention is in the field of the mining industry, and it is intended for lowering support sections when sinking mine shafts and holes.

We know of pull-type devices for lowering support sections for reinforcing mine shafts and holes, consisting of a shifter and a crosspiece connected with levers which interact with the stay wedge. However, they have an insufficient supporting power because the levers slip off the surface of the stay wedge.

The proposed device is different because the stay wedge is made with closed grooves, and the levers are equipped with fasteners which are installed with the possibility of movement in the grooves of the wedge. This prevents the levers from slipping off the surface of the stay wedge.

The figure shows a structural diagram of the proposed device.

In the housing of the stay wedge 1, symmetrical channels (grooves) 2 are planed on both sides under the rear part of the supporting levers 3 and notches 4, in which guide pins 5 are placed. Thus, the

supporting levers and the stay wedge are interconnected and securely fastened to the entire system (wedge - lever - casing pipe) to prevent lateral movements relative to each other.

When thrusting the pull-type device in the casing column 6, by turning shifting device 8 with rod 9 to the left in the loading crosspiece, the stay wedge is lifted upward, and the supporting levers, sliding in the grooves of the rear part equipped with the guide pins, move into the installation openings formed by levelling outer 10 and inner 11 plates. In order to remove the supporting levers from the installation openings, the shifting device is turned to the right, as a result of which the stay wedge is dropped down, and the supporting levers, which rotate freely around their axis 12, are removed from the installation openings by the guide pins moving in the slot grooves.

#### Subject of Invention

This invention is a pull-type device for lowering support sections when reinforcing mine shafts and holes consisting of a shifting device and a crosspiece connected with levers. It differs because in order to prevent the levers from slipping off the surface of the stay wedge, the latter is made with closed grooves, and the levers are equipped with fasteners which are placed in the wedge grooves with the possibility of movement.



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